THE WILKES COMPANY

300 M

Square 772 : Washington DC 20002

Hickok Cole ARCHITECTS

District of Columbia Stormwater Compliance Spreadsheet

	data input cells
	calculation cells
	constant values

Site Data

Site Name: 300 M Street, NE - Washington, DC

Site Information

Is Site an "AWDZ Site"?	No
Is Site Located in the MS4?	No
What Type of Activity is Site Undergoing?	Major Land Disturbing
Regulatory Rain Event for SWRv (inches)	1.2
AWDZ only - Regulatory Rain Event for WQTv (inches)	NA

Indicate Post-Development Land Cover

Cover Type	Site Development Area (square feet)	Public Right of Way Area (square feet)
Natural Cover	0	0
Compacted Cover	0	6,842
Impervious Cover	51,021	32,702
BMP	16,423	0
Site Total	67,444	39,544

Land Cover Summary

	Site Development	Public Right of Way
% Natural Cover	0%	0%
% Compacted Cover	0%	17%
% Impervious Cover	100%	83%
Site Rv	**0.95**	**0.83**

Rv Coefficients

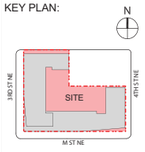
Land Cover Type	Rv
Natural Cover	0.00
Compacted Cover	0.25
Impervious Cover	0.95

SWRv and WQTv Summary

	Site Development	Public Right of Way
Stormwater Retention Volume, SWRv (cubic feet)	6,407	3,278
Stormwater Retention Volume, SWRv (gallons)	47,926	24,517
Water Quality Treatment Volume, WQTv (cubic feet)	NA	NA
Water Quality Treatment Volume, WQTv (gallons)	NA	NA

STORMWATER COMPLIANCE SPREADSHEET

KEY PLAN:



DATE:
OCTOBER 06, 2014

CONSOLIDATED PUD APPLICATION - DRAFT

TITLE:
STORMWATER MANAGEMENT CALCULATIONS

NUMBER:
C-19

District of Columbia Stormwater Compliance Spreadsheet
Site Compliance Calculations

Drainage Area 1

Natural Cover (square feet)	0	SWRv (cubic feet)	2,021
Compacted Cover (square feet)	0	WQTv (cubic feet)	NA
Impervious Cover (square feet)	19,618		
Total Area (square feet)	21,271		
Volume Retained (cubic feet)	222		
Retention Volume Remaining (cubic feet)	1,798		
Retention Volume Remaining (gallons)	13,451		
At least 50% of SWRv Retained?	**No**		
Vehicular Access Areas Volume Addressed?	**N/A**		
Treatment Required?	No		
Volume Treated (cubic feet)	0		
Volume Remaining to Treat 50% of the SWRv (cubic feet)	0		
Volume Remaining to Treat 50% of the SWRv (gallons)	0		
Volume Remaining to Treat WQTv (cubic feet)	N/A		
Volume Remaining to Treat WQTv (gallons)	N/A		

Drainage Area 2

Natural Cover (square feet)	0	SWRv (cubic feet)	1,962
Compacted Cover (square feet)	0	WQTv (cubic feet)	NA
Impervious Cover (square feet)	13,367		
Total Area (square feet)	20,655		
Volume Retained (cubic feet)	958		
Retention Volume Remaining (cubic feet)	1,004		
Retention Volume Remaining (gallons)	7,510		
At least 50% of SWRv Retained?	**No**		
Vehicular Access Areas Volume Addressed?	**N/A**		
Treatment Required?	No		
Volume Treated (cubic feet)	0		
Volume Remaining to Treat 50% of the SWRv (cubic feet)	0		
Volume Remaining to Treat 50% of the SWRv (gallons)	0		
Volume Remaining to Treat WQTv (cubic feet)	N/A		
Volume Remaining to Treat WQTv (gallons)	N/A		

Drainage Area 3

Natural Cover (square feet)	0	SWRv (cubic feet)	716
Compacted Cover (square feet)	0	WQTv (cubic feet)	NA
Impervious Cover (square feet)	5,194		
Total Area (square feet)	7,535		
Volume Retained (cubic feet)	315		
Retention Volume Remaining (cubic feet)	401		
Retention Volume Remaining (gallons)	2,998		
At least 50% of SWRv Retained?	**No**		
Vehicular Access Areas Volume Addressed?	**N/A**		
Treatment Required?	No		
Volume Treated (cubic feet)	0		
Volume Remaining to Treat 50% of the SWRv (cubic feet)	0		
Volume Remaining to Treat 50% of the SWRv (gallons)	0		
Volume Remaining to Treat WQTv (cubic feet)	N/A		
Volume Remaining to Treat WQTv (gallons)	N/A		

Drainage Area 4

Natural Cover (square feet)	0	SWRv (cubic feet)	1,708
Compacted Cover (square feet)	0	WQTv (cubic feet)	NA
Impervious Cover (square feet)	12,674		
Total Area (square feet)	17,983		
Volume Retained (cubic feet)	715		
Retention Volume Remaining (cubic feet)	994		
Retention Volume Remaining (gallons)	7,434		
At least 50% of SWRv Retained?	**No**		
Vehicular Access Areas Volume Addressed?	**N/A**		
Treatment Required?	No		
Volume Treated (cubic feet)	0		
Volume Remaining to Treat 50% of the SWRv (cubic feet)	0		
Volume Remaining to Treat 50% of the SWRv (gallons)	0		
Volume Remaining to Treat WQTv (cubic feet)	N/A		
Volume Remaining to Treat WQTv (gallons)	N/A		

Drainage Area 5

Natural Cover (square feet)	0	SWRv (cubic feet)	4,847
Compacted Cover (square feet)	0	WQTv (cubic feet)	NA
Impervious Cover (square feet)	51,021		
Total Area (square feet)	51,021		
Volume Retained (cubic feet)	4,051		
Retention Volume Remaining (cubic feet)	796		
Retention Volume Remaining (gallons)	5,952		
At least 50% of SWRv Retained?	**Yes**		
Vehicular Access Areas Volume Addressed?	**N/A**		
Treatment Required?	No		
Volume Treated (cubic feet)	0		
Volume Remaining to Treat 50% of the SWRv (cubic feet)	0		
Volume Remaining to Treat 50% of the SWRv (gallons)	0		
Volume Remaining to Treat WQTv (cubic feet)	N/A		
Volume Remaining to Treat WQTv (gallons)	N/A		

Site Compliance

Total Volume Retained On Site (cubic feet)	**6,262**
At least 50% of SWRv for the Site Retained?	**Yes**
Site Retention Volume Remaining (cubic feet)	**146**
Site Retention Volume Remaining (gallons)	**1,089**
Total Volume Treated (cubic feet)	**0**
Site Treatment Volume Remaining (cubic feet)	**0**
Site Treatment Volume Remaining (gallons)	**0**
Excess Volume That May be Eligible for SRCs (gallons)	**0**
Required Off-Site Retention Volume (Offv) (gallons)*	**1,089**

*Offv must be achieved on an ongoing basis through use of in lieu fee or Stormwater Retention Credits (SRCs)

SITE COMPLIANCE CALCULATIONS

District of Columbia Stormwater Compliance Spreadsheet

Drainage Area 1

Indicate Post-Development Land Cover For D.A. 1

Cover Type	Area (square feet)
Natural Cover	0
Compacted Cover	0
Impervious Cover	19,618
Vehicular Access Areas*	0
BMP	1,653
Drainage Area Total	21,271

Land Cover Summary	
% Natural Cover	0%
% Compacted Cover	0%
% Impervious Cover	100%
Site Rv	0.95

Stormwater Retention Volume, SWRv (cubic feet)	2,021
Stormwater Retention Volume, SWRv (gallons)	15,115
Vehicular Access Volume (cubic feet)	0
Water Quality Treatment Volume, WQTv (cubic feet)	NA
Water Quality Treatment Volume, WQTv (gallons)	NA

Rv Coefficients

Land Cover Type	Rv
Natural Cover	0.00
Compacted Cover	0.25
Impervious Cover	0.95

AWDZ Only

*Vehicular Access areas should be included within the Impervious Cover Category

BMPs

	Pervious Cover Draining to BMP		Impervious Cover Draining to BMP		Vehicular Access Area Draining to BMP		Maximum Retention Volume Received by BMP (cubic feet)	Description of Retention Value	% Retention Value	Maximum Retention Volume Received from Upstream BMPs (cubic feet)	Maximum Retention Volume To BMP (cubic feet)	Surface Area of BMP (square feet)	Storage Volume Provided by BMP (cubic feet)	Retention Value (cubic feet)	Potential Retention Volume Remaining (cubic feet)	Additional Treatment Volume (cubic feet)	Downstream BMP	Vehicular Access Volume Addressed?
	Area (square feet)	Type of Cover	Area (square feet)	Type of Cover	Area (square feet)	Volume (cubic feet)												
G1-2 Green Roof		Natural Cover	0	Impervious Cover		0	222	Subtract 100% of the Sv - the volume stored in the green roof filter media and storage layers.	100%	0	222	N/A	411	222	0	N/A		N/A
		Compacted Cover	1,653	BMP														

Totals	0		1,653		0		222					Volume Retained On Site (cubic feet)		222			Volume Treated (cubic feet)		0
												Retention Volume Remaining (cubic feet)		1,798			Volume Remaining to Treat 50% of the SWRv (cubic feet)	0	
												Retention Volume Remaining (gallons)		13,451	Off Site Retention may be needed.		Volume Remaining to Treat 50% of the SWRv (gallons)	0	
												50% of SWRv Retained?		No			Volume Remaining to Treat WQTv (cubic feet)	N/A	
												Runoff from Vehicular Access Areas Sufficiently Retained or Treated?		N/A			Volume Remaining to Treat WQTv (gallons)	N/A	
												Treatment Required?		No					
												Minimum Requirements for Drainage Area Met?		Yes					

DRAINAGE AREA 1: LEVEL 12

District of Columbia Stormwater Compliance Spreadsheet

Drainage Area 2

Indicate Post-Development Land Cover For D.A. 2

Cover Type	Area (square feet)
Natural Cover	0
Compacted Cover	0
Impervious Cover	13,367
Vehicular Access Areas*	0
BMP	7,288
Drainage Area Total	20,655

Land Cover Summary	
% Natural Cover	0%
% Compacted Cover	0%
% Impervious Cover	100%
Site Rv	0.95

Stormwater Retention Volume, SWRv (cubic feet)	1,962
Stormwater Retention Volume, SWRv (gallons)	14,677
Vehicular Access Volume (cubic feet)	0
Water Quality Treatment Volume, WQTv (cubic feet)	NA
Water Quality Treatment Volume, WQTv (gallons)	NA

Rv Coefficients

Land Cover Type	Rv
Natural Cover	0.00
Compacted Cover	0.25
Impervious Cover	0.95

AWDZ Only

*Vehicular Access areas should be included within the Impervious Cover Category

BMPs

	Pervious Cover Draining to BMP		Impervious Cover Draining to BMP		Vehicular Access Area Draining to BMP		Maximum Retention Volume Received by BMP (cubic feet)	Description of Retention Value	% Retention Value	Maximum Retention Volume Received from Upstream BMPs (cubic feet)	Maximum Retention Volume To BMP (cubic feet)	Surface Area of BMP (square feet)	Storage Volume Provided by BMP (cubic feet)	Retention Value (cubic feet)	Potential Retention Volume Remaining (cubic feet)	Additional Treatment Volume (cubic feet)	Downstream BMP	Vehicular Access Volume Addressed?
	Area (square feet)	Type of Cover	Area (square feet)	Type of Cover	Area (square feet)	Volume (cubic feet)												
G1-2 Green Roof		Natural Cover	0	Impervious Cover		0	958	Subtract 100% of the Sv - the volume stored in the green roof filter media and storage layers.	100%	0	958	N/A	1,607	958	0	N/A		N/A
		Compacted Cover	7,120	BMP														

Totals	0		7,120		0		958					Volume Retained On Site (cubic feet)		958			Volume Treated (cubic feet)		0
												Retention Volume Remaining (cubic feet)		1,004			Volume Remaining to Treat 50% of the SWRv (cubic feet)	0	
												Retention Volume Remaining (gallons)		7,510	Off Site Retention may be needed.		Volume Remaining to Treat 50% of the SWRv (gallons)	0	
												50% of SWRv Retained?		No			Volume Remaining to Treat WQTv (cubic feet)	N/A	
												Runoff from Vehicular Access Areas Sufficiently Retained or Treated?		N/A			Volume Remaining to Treat WQTv (gallons)	N/A	
												Treatment Required?		No					

DRAINAGE AREA 2: LEVEL 9

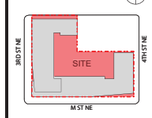
THE WILKES COMPANY

300 M

Square 772 : Washington DC 20002

Hickok Cole ARCHITECTS

KEY PLAN:



DATE:
OCTOBER 06, 2014

CONSOLIDATED PUD APPLICATION - DRAFT

TITLE:
STORMWATER MANAGEMENT CALCULATIONS

NUMBER:
C-20

THE WILKES COMPANY

300 M

Square 772 : Washington DC 20002

Hickok Cole ARCHITECTS

District of Columbia Stormwater Compliance Spreadsheet

Drainage Area 3

Indicate Post-Development Land Cover For D.A. 3

Cover Type	Area (square feet)
Natural Cover	0
Compacted Cover	0
Impervious Cover	5,194
Vehicular Access Areas*	0
BMP	2,341
Drainage Area Total	7,535

Land Cover Summary	
% Natural Cover	0%
% Compacted Cover	0%
% Impervious Cover	100%
Site Rv	0.95

Rv Coefficients	
Land Cover Type	Rv
Natural Cover	0.00
Compacted Cover	0.25
Impervious Cover	0.95

AWDZ Only

Stormwater Retention Volume, SWRv (cubic feet)	716
Stormwater Retention Volume, SWRv (gallons)	5,354
Vehicular Access Volume (cubic feet)	0
Water Quality Treatment Volume, WQTv (cubic feet)	NA
Water Quality Treatment Volume, WQTv (gallons)	NA

*Vehicular Access areas should be included within the Impervious Cover Category

BMPs

	Pervious Cover Draining to BMP		Impervious Cover Draining to BMP		Vehicular Access Area Draining to BMP												
	Area (square feet)	Type of Cover	Area (square feet)	Type of Cover	Area (square feet)	Volume (cubic feet)	Maximum Retention Volume Received by BMP (cubic feet)	Description of Retention Value	% Retention Value	Maximum Retention Volume Received from Upstream BMPs (cubic feet)	Maximum Retention Volume To BMP (cubic feet)	Surface Area of BMP (square feet)	Storage Volume Provided by BMP (cubic feet)	Retention Value (cubic feet)	Potential Retention Volume Remaining (cubic feet)	Additional Treatment Volume (cubic feet)	Downstream BMP	Vehicular Access Volume Addressed?
G1-2 Green Roof		Natural Cover	0	Impervious Cover		0	315	Subtract 100% of the Sv - the volume stored in the green roof filter media and storage layers.	100%	0	315	N/A	1,219	315	0	N/A		N/A
		Compacted Cover	2,341	BMP														
Totals	0		2,341		0		315											

Volume Retained On Site (cubic feet)	315	Volume Treated (cubic feet)	0
Retention Volume Remaining (cubic feet)	401	Volume Remaining to Treat 50% of the SWRv (cubic feet)	0
Retention Volume Remaining (gallons)	2,998	Off Site Retention may be needed. Volume Remaining to Treat 50% of the SWRv (gallons)	0
50% of SWRv Retained?	No	Volume Remaining to Treat WQTv (cubic feet)	N/A
Runoff from Vehicular Access Areas Sufficiently Retained or Treated?	N/A	Volume Remaining to Treat WQTv (gallons)	N/A
Treatment Required?	No		
Minimum Requirements for Drainage Area Met?	Yes		

DRAINAGE AREA 3: LEVEL 2

District of Columbia Stormwater Compliance Spreadsheet

Drainage Area 4

Indicate Post-Development Land Cover For D.A. 4

Cover Type	Area (square feet)
Natural Cover	0
Compacted Cover	0
Impervious Cover	12,674
Vehicular Access Areas*	0
BMP	5,309
Drainage Area Total	17,983

Land Cover Summary	
% Natural Cover	0%
% Compacted Cover	0%
% Impervious Cover	100%
Site Rv	0.95

Rv Coefficients	
Land Cover Type	Rv
Natural Cover	0.00
Compacted Cover	0.25
Impervious Cover	0.95

AWDZ Only

Stormwater Retention Volume, SWRv (cubic feet)	1,708
Stormwater Retention Volume, SWRv (gallons)	12,779
Vehicular Access Volume (cubic feet)	0
Water Quality Treatment Volume, WQTv (cubic feet)	NA
Water Quality Treatment Volume, WQTv (gallons)	NA

*Vehicular Access areas should be included within the Impervious Cover Category

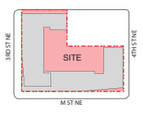
BMPs

	Pervious Cover Draining to BMP		Impervious Cover Draining to BMP		Vehicular Access Area Draining to BMP												
	Area (square feet)	Type of Cover	Area (square feet)	Type of Cover	Area (square feet)	Volume (cubic feet)	Maximum Retention Volume Received by BMP (cubic feet)	Description of Retention Value	% Retention Value	Maximum Retention Volume Received from Upstream BMPs (cubic feet)	Maximum Retention Volume To BMP (cubic feet)	Surface Area of BMP (square feet)	Storage Volume Provided by BMP (cubic feet)	Retention Value (cubic feet)	Potential Retention Volume Remaining (cubic feet)	Additional Treatment Volume (cubic feet)	Downstream BMP	Vehicular Access Volume Addressed?
G1-2 Green Roof		Natural Cover	0	Impervious Cover		0	715	Subtract 100% of the Sv - the volume stored in the green roof filter media and storage layers.	100%	0	715	N/A	2,765	715	0	N/A		N/A
		Compacted Cover	5,309	BMP														
Totals	0		5,309		0		715											

Volume Retained On Site (cubic feet)	715	Volume Treated (cubic feet)	0
Retention Volume Remaining (cubic feet)	994	Volume Remaining to Treat 50% of the SWRv (cubic feet)	0
Retention Volume Remaining (gallons)	7,434	Off Site Retention may be needed. Volume Remaining to Treat 50% of the SWRv (gallons)	0
50% of SWRv Retained?	No	Volume Remaining to Treat WQTv (cubic feet)	N/A
Runoff from Vehicular Access Areas Sufficiently Retained or Treated?	N/A	Volume Remaining to Treat WQTv (gallons)	N/A
Treatment Required?	No		
Minimum Requirements for Drainage Area Met?	Yes		

DRAINAGE AREA 4: LEVEL 1

KEY PLAN:



DATE:
OCTOBER 06, 2014

CONSOLIDATED PUD APPLICATION - DRAFT

TITLE:
STORMWATER MANAGEMENT CALCULATIONS

NUMBER:
C-21

District of Columbia Stormwater Compliance Spreadsheet

Drainage Area 5

Indicate Post-Development Land Cover For D.A. 5

Cover Type	Area (square feet)
Natural Cover	0
Compacted Cover	0
Impervious Cover	51,021
Vehicular Access Areas*	0
BMP	0
Drainage Area Total	51,021

Land Cover Summary	
% Natural Cover	0%
% Compacted Cover	0%
% Impervious Cover	100%
Site Rv	0.95

Stormwater Retention Volume, SWRv (cubic feet)	4,847
Stormwater Retention Volume, SWRv (gallons)	36,256
Vehicular Access Volume (cubic feet)	0
Water Quality Treatment Volume, WQTv (cubic feet)	NA
Water Quality Treatment Volume, WQTv (gallons)	NA

Rv Coefficients	
Land Cover Type	**Rv**
Natural Cover	0.00
Compacted Cover	0.25
Impervious Cover	0.95

AWDZ Only

*Vehicular Access areas should be included within the Impervious Cover Category

BMPs

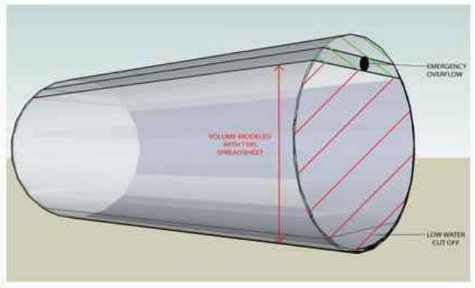
	Pervious Cover Draining to BMP		Impervious Cover Draining to BMP		Vehicular Access Area Draining to BMP												
	Area (square feet)	Type of Cover	Area (square feet)	Type of Cover	Area (square feet)	Volume (cubic feet)	Maximum Retention Volume Received by BMP (cubic feet)	Description of Retention Value	% Retention Value	Maximum Retention Volume Received from Upstream BMPs (cubic feet)	Maximum Retention Volume To BMP (cubic feet)	Surface Area of BMP (square feet)	Storage Volume Provided by BMP (cubic feet)	Retention Value (cubic feet)	Potential Retention Volume Remaining (cubic feet)	Additional Treatment Volume (cubic feet)	Downstream BMP	Vehicular Access Volume Addressed?
R1 Rainwater Harvesting		Natural Cover	51,021	Impervious Cover	0	0	6,867	Subtract a variable % of the volume received by BMP based on cistern storage and reuse rate.	59%	0	6,867	N/A	N/A	4,051	2,815	N/A		N/A
		Compacted Cover	0	BMP														
Totals	0		51,021		0		6,867				Volume Retained On Site (cubic feet)			4,051		Volume Treated (cubic feet)		0

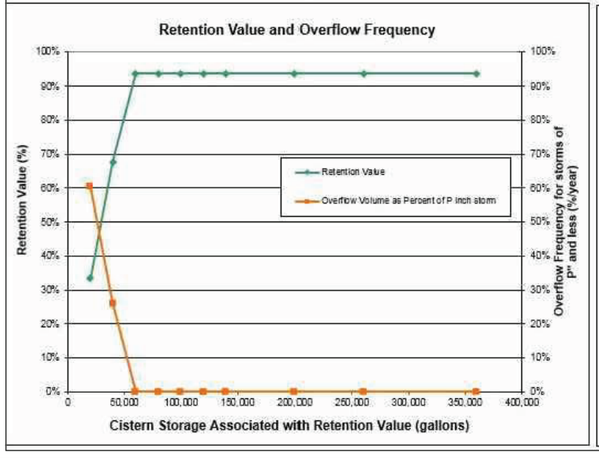
Retention Volume Remaining (cubic feet)	796		Volume Remaining to Treat 50% of the SWRv (cubic feet) 0
Retention Volume Remaining (gallons)	5,952	Off Site Retention may be needed.	Volume Remaining to Treat 50% of the SWRv (gallons) 0
50% of SWRv Retained?	Yes		Volume Remaining to Treat WQTv (cubic feet) N/A
Runoff from Vehicular Access Areas Sufficiently Retained or Treated?	N/A		Volume Remaining to Treat WQTv (gallons) N/A
Treatment Required?	No		
Minimum Requirements for Drainage Area Met?	Yes		

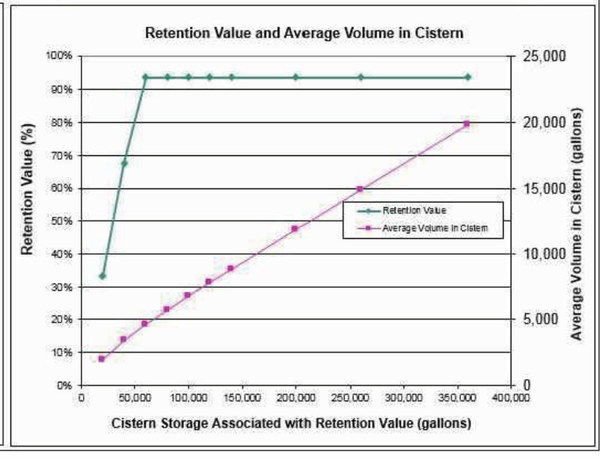
DRAINAGE AREA 5: CISTERN

Retention Volume Summary: Results for a P" Storm, where P" = 1.7"

Cistern Storage Associated with Retention Value (gallons)	Average Volume in Cistern (1977-2007)	Overflow Volume caused by one storm of size P" (gallons)	Overflow Volume as Percent of total rainfall contribution from one P" storm (%)	Retention Value (%)
20,000	1,967	32,657	60%	33%
40,000	3,431	14,120	26%	68%
60,000	4,608	0	0%	94%
80,000	5,727	0	0%	94%
100,000	6,778	0	0%	94%
120,000	7,795	0	0%	94%
140,000	8,815	0	0%	94%
200,000	11,869	0	0%	94%
260,000	14,867	0	0%	94%
360,000	19,867	0	0%	94%







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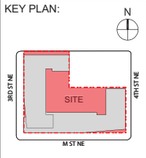
THE WILKES COMPANY

300 M

Square 772 : Washington DC 20002

Hickok Cole ARCHITECTS

KEY PLAN:



DATE:
OCTOBER 06, 2014

CONSOLIDATED PUD APPLICATION - DRAFT

TITLE:
STORMWATER MANAGEMENT CALCULATIONS

NUMBER:
C-22